

National Biological Information Infrastructure (NBII) Metadata Steps

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Purpose: This document provides steps for inserting NBII metadata into a metadata file created in ArcCatalog without using SMMS.

Software and file requirements:

- ArcGIS 8.x
- Text editor (I prefer TextPad)
- NPS metadata tools extension for ArcGIS, (Available at: http://www.nature.nps.gov/im/units/mwr/gis/metadata/metadata_tools.htm a more recent version may be available from the developer at edcompas@wisc.edu).
- The NBII template text document (See Appendix A).
- MP version 2.7.33.exe (Available with this document).
- Internet access and web browser.

Procedure:

A. Task: Create SGML Taxonomy output of your species list.

1. Create an ASCII text file containing a list of scientific names of the species in question. The file must be arranged in one column with the column heading "name" on the first line (Example 1). This file may be created from scratch in a text editor, or an existing file may be converted to text. A few examples follow:
 - 'Save As:/Text (Tab delimited)' command in MSExcel (This can be tricky, you may need to copy and paste to a text file).
 - 'Save As:/Text' command in MSWord.
 - Export as a text file from a shape file or Geodatabase in ArcMap,*Note: species from different kingdoms (Animal, Plant, Monera, Protist, and Fungi) must be placed in separate text files.*

```
name
Odocoileus virginianus
Other scientific name
Other scientific name
Other scientific name
```

Example 1: Species list.

2. Go to the Integrated Taxonomic Information System (ITIS) website <http://www.itis.usda.gov>
 - Choose 'Tools' then 'Compare Taxonomy/Nomenclature'

- In the first field, browse for the text file that you created above and choose 'Upload File'.
 - A new window will come up noting that the download was successful, click 'OK'.
 - Your file's name should appear in the second field.
- Ignore the field asking about the delimiter.
- Click 'Step2'.

ITIS Tools

What's New
About ITIS
Data Access
Submit Data
Tools
TRED
Links
Comments
Home

Compare Taxonomy/Nomenclature

Please Note: A prototype ITIS Taxonomic Metadata Tool has been added as an option to enable generation of a component of the FGDC Biological Profile with SGML output. It is currently based on an input file of scientific names only. The prototype will be enhanced in the coming months. Please review the [Taxonomic Tool Use Guidelines](#) document for more information.

Step 1 - Upload and Identify File

- In order to perform a taxonomy/nomenclature comparison using the ITIS Online database, the data must first be put into the [compare taxonomy/nomenclature import format](#).
- The next step is to upload your file to the ITIS server:
 Upload File Name:
- Confirm file name or type in the file name to be matched against ITIS (this entry is case-sensitive, please enter the name exactly as you transferred it):

Select the character delimiter used to separate the fields within the file:
 Press the Step 2 button to continue: .
 To reset the file name and delimiter, press the reset button: .

Last Updated: 23-Apr-2003

- 'Step 3:' Choose the appropriate Kingdom button.
- 'Step 4:' Choose Perform Taxonomy Compare on 'Scientific Name', to view matches and non-matches between your dataset and ITIS's standardized names.
 - For non matches go to the ITIS home page and look up the correct names
 - Repeat 'Step 4:' until your list matches with ITIS.
- Continuing with 'Step 4:' choose '(FGDC Biological Profile Report - Prototype)'
 - Click generate FDDC Bio Profile button

-- Right-click to download SGML and save in the appropriate directory on your computer.

The screenshot displays the ITIS Report web interface. At the top left is the ITIS logo, and to its right is the text 'ITIS Report'. A navigation menu includes 'Home', 'Data Access', 'Submit Data', 'Tools', and 'Comment'. The main content area is titled 'Compare Taxonomy/Nomenclature' and is divided into five steps:

- Step 2 - View Data File:** A button labeled 'View Data File' is present.
- Step 3 - Select a Kingdom to Compare Against:** A list of kingdoms with radio buttons: Monera, Protista, Plantae (selected), Fungi, and Animalia.
- Step 4 - Perform Taxonomy Compare On:** A list of comparison criteria with radio buttons: Scientific Name, Scientific Name & Author, Scientific Name, Author & Rank, and Scientific Name (FGDC Biological Profile Report - Prototype) (selected).
- Step 5 - Indicate Report Options:** Two checked checkboxes: 'View non-matches' and 'View matches'.

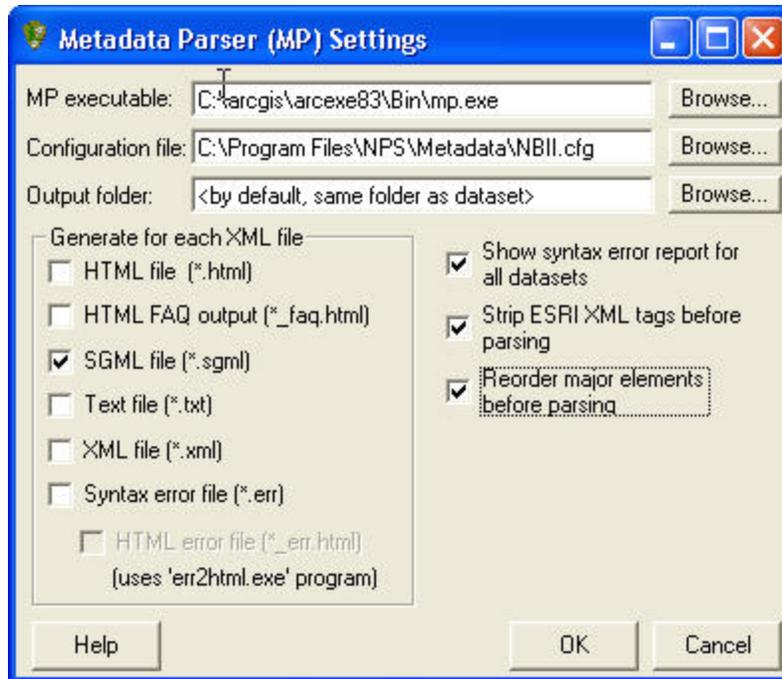
At the bottom, there is a 'Taxonomy Compare' button and a 'Reset' button.

B. Task: Complete NBII fields and Insert NBII data into your existing metadata.

1. To export your existing metadata from ArcCatalog.

In ArcCatalog choose 'NPSMetadata – Parse with MP'

- Ensure that the first field points to the correct location of MP.
- Ensure that the second field points to the correct location of NBII.cfg.
- Choose the correct output folder. *Note: If you are working from a Geodatabase, you must change the output folder or the file will end up inaccessible inside the Geodatabase.*
- In the left column choose 'SGML file (*.sgml)'
- In the right column choose all three check boxes.
- Click 'OK'
- This procedure will export the existing metadata. It will be:
 - Formatted as SGML
 - Saved in the folder noted above,
 - Named the same as the file that the metadata documents.



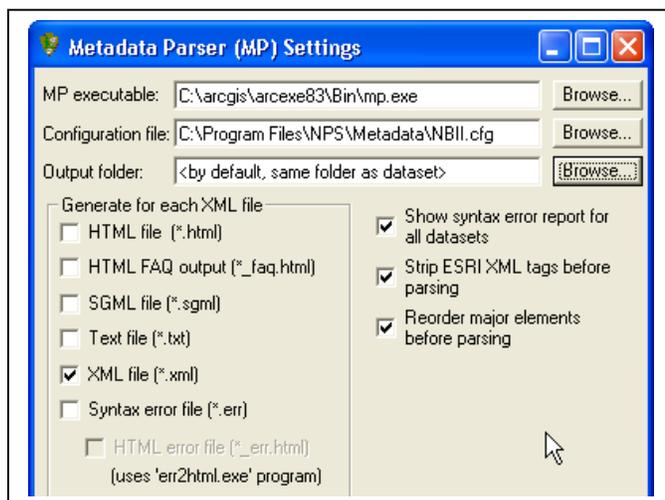
Box setup for creating SGML output for metadata.

2. Open files in the text editor:
 - Exported metadata (from B.1. above)
 - ITIS SGML output (from A.2. above)
 - NBII template (see below)
3. Complete the 3 categories of biological metadata for your site and species in the NBII Template.
 - Description of Geographic Extent: Type in a short description of the geographic areal domain of the set. Place text between the <descgeog> and </descgeog> tags.
Examples of Description of Geographic Extent: “Maministee River watershed”, “ponds larger than 2 acres in Jefferson County, CO”, or “Within the boundary of Effigy Mounds National Monument.”
 - Taxonomy: complete the following information after the appropriate tags.
 - Keywords <taxonkey>– copy and paste tags to create multiple keywords
 - Publication date<pubdate> – date you accessed ITIS
 - Taxonomic procedure <taxonpro>– Description of the methods used for the taxonomic identification.
 - Vouchers – complete if applicable
 - Specimen type <specimen>
 - Repository Contact Information <reposit><cntinfo>

- Taxonomic Classification <taxoncl> - Go to the SGML output from ITIS. ‘Select All’ text and ‘Copy’. Go to the NBII Template document and ‘Paste’ in the appropriate location.
 - Methodology
 - Methodology Type <methtype>: Input “field”, “lab”, or whatever general term is appropriate.
 - Methodology Description <methdesc>: Insert a few sentences describing the sampling or inventory methods.
4. Copy and paste the NBII components into your metadata file, as follows:
- Description of Geographic Extent: copy lines below “Blob 1” from NBII Template and paste it directly after the ‘<spdom>’ tag.
 - Taxonomy: Copy lines below “Blob 2” from NBII Template and paste it directly after the </keyword> tag.
 - Methodology: Copy lines below “Blob 3” from NBII Template and paste it directly after the **last** </procstep> tag.
5. Save your NBII updated SGML metadata file.

C. Task: Convert your SGML metadata file to XML.

- Highlight your SGML file in the ArcCatalog table of contents.
- Open NPS metadata tools, ‘Parse with MP’
- In the first field, navigate to where you saved MP version 2.7.33 and choose it.
- In the second field choose the ‘NBII.cfg’ configuration file
- In the third field choose the correct output folder. *Note: If you are working from a Geodatabase, you must change the output folder or the file will end up inaccessible inside the Geodatabase.*
- In the left column choose ‘XML file (*.xml)’
- In the right column choose all three check boxes.
- Click ‘OK’



D. Task: Delete your old metadata.

If you have NPS Metadata Tools v1.5b or newer

- Highlight the shape or data file with metadata attached in the ArcCatalog Table of Contents.
- Choose NPS Metadata Tools/Delete Metadata
- Choose Yes when it asks if you really want to delete metadata.

If you have an older version of NPS Metadata tools,

If you are in a Shapefile environment:

- Open a 'Windows Explorer' window.
- Navigate to your shapefile.
- Find the yourfilename.shp.xml (This action assumes that the Xml file created above has a different name or is stored in a different location than the old one attached to the shapefile.)
- Delete yourfilename.shp.xml.

If you are in a Geodatabase environment:

- Open ArcCatalog
- Navigate to the file that your metadata documents.
- Click the metadata tab on the right side of the window.
- Choose the 'NPS Metadata'/'Manually Edit Xml' tool.
- Click 'Yes' in the warning box.
- Select and delete all metadata except the first line and the `<metadata></metadata>` tags.
- In ArcCatalog, the metadata window should say, "No descriptive information about the data is available," or something similar.

E. Task: Import your new metadata, and check for errors

1. Import new metadata

- In the ArcCatalog table of contents, highlight the file to which you will attach metadata
- Choose the NPS Metadata tools/ 'Import Metadata' tool.
- Click 'Continue' in the Metadata Import Settings box without changing any settings.
- Click 'Yes' to choose a template.
- Browse to your Xml metadata file that contains the NBII data. Click 'Open'.
- Click 'OK' in the status box.

2. Make sure that it worked.

- Switch to the Stylesheet 'NPS NBII', and verify that all parts of the NBII data are included.

- Parse your metadata with the 'NPS Metadata' / 'Parse with MP' tool
be sure that the NBII.cfg configuration file selected.
- Correct Errors as necessary.

Appendix A: NBII template

Copy and paste to a text document and fill in blue text as appropriate. Delete entire <vouchers> section if no voucher specimens were collected. Insert NBII metadata into larger metadata document after tag in orange. The NBII metadata contains many more fields, but these are the ones used in documenting NPS Heartland Network Inventories.

Blob 1:

```
<idinfo>
<spdom>
<descgeog>description of geographic extent</descgeog>
```

Blob 2:

```
<keywords></keywords>
<taxonomy>
<keywtax>
<taxonkt>none</taxonkt>
<taxonkey>keyword goes here</taxonkey>
</keywtax>
<taxonsys>
<classsys>
<classcit>
<citeinfo>
<origin>ITIS</origin>
<pubdate>date you accessed ITIS</pubdate>
<pubtime>Unknown</pubtime>
<title>Integrated Taxonomic Information System (ITIS)</title>
<edition>online database searched on above date</edition>
<geoform>Database</geoform>
<onlink>www.itis.usda.gov</onlink>
</citeinfo>
</classcit>
</classsys>
<taxonpro>How were the species identified? Cite any book used to key species. (Often "field identified by 'observer's name'" is sufficient.)</taxonpro>
<vouchers>
<specimen>type of specimen</specimen>
<reposit>
<cntinfo>
<cntorgp>
<cntorg>Name of repository and collection, delete section if no specimens</cntorg>
</cntorgp>
<cntaddr>
<addrtype>mailing and physical address</addrtype>
<address>Address</address>
<city>city</city>
<state>state</state>
```

```
<postal>zip code</postal>
<country>USA</country>
</cntaddr>
<cntvoice>phone number</cntvoice>
</cntinfo>
</reposit>
</vouchers>
</taxonsys>
<taxoncl>paste in ITIS output here</taxoncl>
</taxonomy>
```

Blob 3:

```
<dataqual>
<lineage>
<procstep></procstep>
<method>
<methtype>Field</methtype>
<methdesc>Description of methods.
</methdesc>
</method>
</lineage>
</dataqual>
```

Example of complete metadata: NBII elements are in red.

```
<?xml version="1.0" encoding="UTF-8"?>
<metadata>
<idinfo>
<citation>
<citeinfo>
<origin>NPS HTLN</origin>
<pubdate>Unknown</pubdate>
<title>Feature Class Buffalo Birds</title>
<geoform>digital data</geoform>
<pubinfo>
<pubplace>NPS MWR GIS Service Center</pubplace>
<publish>NPS</publish>
</pubinfo>
<onlink
Sync="TRUE">\\INPMWROGISPA02\D\Projects\HTLN\BUFFBirdsSM\FinalGDB\BU
FFBirdsGDBFinal.mdb</onlink>
</citeinfo>
</citation>
<descript>
<abstract>These spatial locations document the locations of sampling plots for bird
inventory at Buffalo National River.</abstract>
```

<purpose>The data will be used to direct future efforts to manage birds at the park.</purpose>

<supplinf>This geodatabase is comprised of related tables. No one table is to be used in isolation. Prior to manipulating the data, user should review the graphical representation of relationships between tables in MSAccess. Please note that relationships between tables are configured to cascade changes and deletions throughout the database.</supplinf>

</descript>

<timeperd>

<timeinfo>

<rngdates>

<begdate>20020515</begdate>

<begtime>unknown</begtime>

<enddate>20020619</enddate>

<endtime>unknown</endtime>

</rngdates>

</timeinfo>

<current>ground condition</current>

</timeperd>

<status>

<progress>Complete</progress>

<update>None planned</update>

</status>

<spdom>

<bounding>

<westbc Sync="TRUE">-93.355338</westbc>

<eastbc Sync="TRUE">-92.406493</eastbc>

<northbc Sync="TRUE">36.168294</northbc>

<southbc Sync="TRUE">35.953727</southbc>

</bounding>

<descgeog>The Buffalo National River encompasses 135 miles of the 150-mile long Buffalo River. Following what is likely an ancient riverbed, the Buffalo cuts its way through massive limestone bluffs traveling eastward through the Ozarks and into the White River. The national river has three designated wilderness areas within its boundaries.</descgeog>

</spdom>

<keywords>

<theme>

<themekt>none</themekt>

<themekey>BUFF bird geodatabase</themekey>

<themekey>Birds</themekey>

<themekey>Inventory</themekey>

</theme>

<place>

<placekt>none</placekt>

<placekey>BUFF</placekey>

<placekey>Buffalo National River</placekey>

<placekey>Arkansas</placekey>
</place>
</keywords>
<acceconst>None</acceconst>
<useconst>Credit NPS when using.</useconst>
<ptcontac>
<cntinfo>
<cntperp>
<cntper>Michael Williams</cntper>
<cntorg>Heartland Network Inventory and Monitoring Program</cntorg>
</cntperp>
<cntpos>Inventory Specialist</cntpos>
<cntaddr>
<addrtype>mailing and physical address</addrtype>
<address>
Wilson's Creek NB
6424 W. Farm Rd. 182
</address>
<city>Republic</city>
<state>MO</state>
<postal>65738</postal>
<country>USA</country>
</cntaddr>
<cntvoice>417-732-6438 x 283</cntvoice>
<cntfax>417-732-7660</cntfax>
<cntemail>Michael_H_Williams@nps.gov</cntemail>
<hours>9:00 am to 4:00 pm CST</hours>
</cntinfo>
</ptcontac>
<datacred>National Park Service</datacred>
<native Sync="TRUE">Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 1; ESRI ArcCatalog 8.3.0.800</native>
<taxonomy>
<keywtax>
<taxonkt>none</taxonkt>
<taxonkey>birds</taxonkey>
<taxonkey>trees</taxonkey>
</keywtax>
<taxonsys>
<classsys>
<classcit>
<citeinfo>
<origin>ITIS</origin>
<pubdate>20040531</pubdate>
<pubtime>Unknown</pubtime>
<title>Integrated Taxonomic Information System (ITIS)</title>
<edition>online database searched on above date</edition>

<geoform>Database</geoform>
<onlink>www.itis.usda.gov</onlink>
</citeinfo>
</classcit>
</classsys>
<taxonpro>Field identified (visual and auditory) by Chris Kellner.</taxonpro>
</taxonsys>
<taxoncl>
<taxonrn>Kingdom</taxonrn>
<taxonrv>Plantae</taxonrv>
<taxoncl>
<taxonrn>Subkingdom</taxonrn>
<taxonrv>Tracheobionta</taxonrv>
<taxoncl>
<taxonrn>Division</taxonrn>
<taxonrv>Coniferophyta</taxonrv>
<taxoncl>
1565 rows of taxonomy data were deleted here
</taxoncl>
</taxonomy>
</idinfo>
<dataqual>
<attracc>
<attraccr>none</attraccr>
</attracc>
<logic>none</logic>
<complete>none</complete>
<lineage>
<procstep>
<procdesc>GPS data collected in the field</procdesc>
<srcused>GPS</srcused>
<procdate>200205</procdate>
<procont>
<cntinfo>
<cntperp>
<cntper>Chris Kellner</cntper>
<cntorg>Arkansas Tech University</cntorg>
</cntperp>
<cntpos>Assistant Professor</cntpos>
<cntaddr>
<addrtype>mailing address</addrtype>
<address>Arkansas Tech University</address>
<city>Russellville</city>
<state>AR</state>
<postal>72801-2222</postal>
<country>USA</country>
</cntaddr>

<cntvoice>(501) 964 0830</cntvoice>
</cntinfo>
</procont>
</procstep>
<procstep>
<procdesc>GPS data differentially corrected</procdesc>
<srcused>correction</srcused>
<procddate>unknown</procddate>
<procont>
<cntinfo>
<cntperp>
<cntper>Chris Kellner</cntper>
<cntorg>Arkansas Tech University</cntorg>
</cntperp>
<cntpos>Assistant Professor</cntpos>
<cntaddr>
<addrtype>mailing address</addrtype>
<address>Arkansas Tech University</address>
<city>Russellville</city>
<state>AR</state>
<postal>72801-2222</postal>
<country>USA</country>
</cntaddr>
<cntvoice>(501) 964 0830</cntvoice>
</cntinfo>
</procont>
</procstep>
<procstep>
<procdesc>GPS data exported as Shapefile</procdesc>
<srcused>export</srcused>
<procddate>Unknown</procddate>
<procont>
<cntinfo>
<cntperp>
<cntper>Chris Kellner</cntper>
<cntorg>Arkansas Tech University</cntorg>
</cntperp>
<cntpos>Assistant Professor</cntpos>
<cntaddr>
<addrtype>mailing address</addrtype>
<address>Arkansas Tech University</address>
<city>Russellville</city>
<state>AR</state>
<postal>72801-2222</postal>
<country>USA</country>
</cntaddr>
<cntvoice>(501) 964 0830</cntvoice>

</cntinfo>
</proccont>
</procstep>
<procstep>
<procdesc>Shapefile added to geodatabase</procdesc>
<procdesc>200404</procdesc>
</proccont>
<cntinfo>
<cntperp>
<cntperp>Michael Williams</cntperp>
<cntorg>NPS Heartland Network</cntorg>
</cntperp>
<cntpos>Data Manager</cntpos>
<cntaddr>
<addrtype>mailing and physical address</addrtype>
<address>Wilson's Creek NB</address>
<address>6424 W. Farm Rd. 182</address>
<city>Republic</city>
<state>MO</state>
<postal>65738</postal>
<country>USA</country>
</cntaddr>
<cntvoice>417-732-6438 x 283</cntvoice>
<cntfax>417-732-7660</cntfax>
<cntemail>michael_h_williams@nps.gov</cntemail>
<hours>M-F 0800-1600 (central)</hours>
</cntinfo>
</proccont>
</procstep>
<method>
<methtype>Field</methtype>
<methdesc>Between 15 May and 19 June of 2002, birds were censused at 216 points located at approximately 0.5-mile intervals along the Buffalo National River between Ponca, Arkansas and the White River. Census points were located within forest stands within approximately 100 m of the river bank. Each point was composed of three distance zones: 0-25 meters, 25-50 meters, and beyond 50 meters (as far as could be heard). In addition, three time periods were used: 0-3 min. 3-5 min. and 5-10 min. The censusing protocol used was identical to that used by the U.S. Forest Service throughout Arkansas and allows direct comparison with their data.</methdesc>
</method>
</lineage>
</dataqual>
<spdoinfo>

Several sections of metadata were removed after this point none had NBII data.